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WPNSSB

TE1NA-F

TESTER, SEMICONDUCTOR

1. GENERAL. This procurement requires a solid-state, semiconductor analyzer capable of both in-circuit GO/NO-GO testing and out-of-circuit parameter testing.

2. CLASSIFICATION. Type II, Class 5, Style EP, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. OPERATIONAL REQUIREMENTS. The equipment shall be capable of operation within the minimum accuracies, limits, and specifications identified below.

3.1 In-circuit. The equipment shall be capable of testing semiconductors in a circuit with circuit power removed, providing an indication of an operative (GO) or inoperative (NO-GO) condition. If tests are conducted within the shunt limitations specified below, the GO/NO-GO test indication shall be valid regardless of semiconductor to equipment test lead orientation. Correct test lead orientation may be required to obtain the following:

a. The base lead identification and proper operating polarity of an operative device.

b. The type of failure of an inoperative device, such as an open or short, and the junction involved.

3.1.1 Shunt limits. The equipment shall be capable of in-circuit testing of diodes and transistors with the following shunt limits:

Resistance: 180 ohms or greater
Capacitance: 5 uF or less

3.2 Out-of-circuit. The equipment shall be provided with out-of-circuit dynamic transistor parameter measurement capabilities as follows:

a. Beta, from 0 to 500.

b. Collector-to-base leakage current of 1 uA to 5 mA with a resolution of 200 nA on the most sensitive range.

3.2.1 Accuracy. ±10% of indication.

3.2.2 Bias current range. Bias currents for low and high power transistors shall be provided.

3.3 Indicators. The equipment shall include a meter having a linear scale or scales such that parameter values are defined in an ascending left-to-right sequence, or an equivalent digital display. For analog meters, front-panel meter zeroing shall be provided. GO/NO-GO information shall be conveyed by visual indicators and shall include a selectable audio indicating mode.

3.4 Test sockets. The equipment shall be provided with front-panel-mounted transistor test sockets for TO-3, TO-5, and TO-66 case configurations.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Maximum power

consumption: 25W.

4.2 Weight. 5 kg (11 lb) maximum.

4.3 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.4 Accessories. The following accessories shall be provided with the equipment:

a. One set of color coded clip-on test leads at least 0.457m (1.5 ft) long.

b. One spares kit consisting of replacement fuses, replacement lamp assemblies (if applicable), spare semiconductor sockets, and any required calibration components.

4.5 Transit case. The Style P transit case shall store all components of the semiconductor test set.